REMARKS

This Amendment is filed in response to the Non-Compliant Amendment mailed on April 10, 2008, and the Final Office Action mailed on October 11, 2007. All objections and rejections are respectfully traversed.

Claims 1-32 are in the case.

Claims 33-35 have been added.

Claim 15 has been amended.

Please enter and consider the Amendment filed on January 24, 2008.

Request for Interview

The Applicant respectfully requests a telephonic interview with the Examiner after the Examiner has had an opportunity to consider this Amendment, but before the issuance of the next Office Action. The Applicant's undersigned attorney may be reached at 617-951-2500.

Rejections Under 35 U.S.C. § 102(e)

At paragraph 5 of the Final Office Action, the Examiner rejected claims 15 and 16 under 35 U.S.C. § 102(e) as being anticipated by Craddock et al., U.S. Publication No. 2003/0061296 published on March 26, 2003, (hereinafter "Craddock").

Applicant's claimed novel invention, as set forth in representative claim 15, comprises in part:

15. A method comprising the steps of:

> ***(a) initiating a peer-to-peer communication session by attempting a first remote direct memory access read operation directed to a predefined hardware address and a predefined port number, the predefined hardware address and the predefined port number previously known to support a remote direct memory access operations;***
>
> (b) performing, in response to a successful step (a), a first remote direct memory access write operation directed to the predefined hardware address and the predefined port number.

Craddock discloses a method, computer program product, and distributed data processing system for processing storage I/O in a system area network (SAN). Craddock uses I/O transactions which represent a unit of I/O work and typically contain multiple messages. These I/O transactions are read from a specific disk sector into a specific host memory location. Craddock provides a mechanism for initiating and completing one or more I/O transactions using memory semantic messages which are transmitted by means of a remote direct access (RDMA) operation. Specifically, a process running on a host first reserves a memory space for holding read data. The process then invokes a device driver associated with the storage device adapter, specifying ***that data from the storage device*** is to be read into read data memory space. At the close of the read transaction, the adapter generates a response and an **associated** write RDMA with an immediate work queue element that is interpreted and processed and transmitted via RDMA transfer to a host where it is stored in a location which was reserved for the response message.

Applicant respectfully urges that Craddock does not show Applicant's claimed novel use of ***initiating a peer-to-peer communication session by attempting a first remote direct memory access read operation directed to a predefined hardware address and a predefined port number, the predefined hardware address and the predefined port number previously known to support a remote direct memory access operation.***

Applicant claims a system and method for establishing (i.e., initiating) a peer con-

nection using reliable RDMA primitives (i.e., any protocol that supports specific ports and network addresses that support RDMA). That is, Applicants invention uses specific ports and network addresses so that it knows that the connection will be reliable based on the protocols known support of RDMA operations. Specifically, the method initiates a peer-to-peer communication session by first attempting a ***remote direct memory access read operation directed to a predefined hardware address and a predefined port number which is known to support remote direct access memory operations***. If a peer-to-peer connection is successful, then a RDMA write operation is performed wherein it too is directed to the predefined hardware address and the predefined port number.

Craddock does not disclose initiating a peer-to-peer connection using predefined hardware address and port number known to support RDMA operations. Rather Craddock only discloses connecting to a specific disk sector and memory. Although a memory contains the ports and has a specific address, within that memory are many ports and addresses which can be used to connect to that same memory. Therefore, because in applicant's invention it is important the connection is made to ports and network addresses that support RDMA operations. Furthermore, Craddock reads from a disk rather from the memory and writes only a response that the data on the disk has been read disk rather than the memory. In Applicant's invention the read is done on the memory rather than on the disk like in Craddock. In addition Craddock writes on response on the disk rather than writing the read data to the memory.

Applicant respectfully urges that the published Craddock patent application is legally precluded from anticipating the claimed invention under 35 U.S.C. § 102(e) because of the absence from the Craddock application of Applicant's novel use of ***initiating a peer-to-peer communication session by attempting a first remote direct memory access read operation directed to a predefined hardware address and a predefined port number, the predefined hardware address and the predefined port number previously***

known to support a remote direct access memory operations.

All independent claims are believed to be in condition for allowance.

All dependent claims are believed to be dependent from allowable independent claims, and therefore in condition for allowance.

Favorable action is respectfully solicited.

Rejections Under 35 U.S.C. § 103(a)

At paragraph 8 of the Final Office Action, the Examiner rejected claims 1-3, 13-14, and 17-19 under 35 U.S.C. § 103(a) as being unpatentable over Craddock in view of Plummer et al., U.S. Publication No. 2005/0166185 (hereinafter "Plummer").

Applicant's claimed novel invention, as set forth in representative claim 1, comprises in part:

> 1. ***A method for initiating a peer-to-peer communication session,*** the method comprising the steps of:
> attempting a first remote direct memory access (RDMA) read operation directed to a cluster partner;
> ***performing, in response to a successful first RDMA read operation, a first RDMA write operation to the cluster partner***;
> performing, in response to a successful RDMA write operation, a second RDMA read operation directed to the cluster partner; and
> performing, in response to a successful second RDMA read operation, a second RDMA write operation to the cluster partner.

As noted above, Craddock discloses a method, computer program product, and distributed data processing system for processing storage I/O in a storage area network (SAN). Specifically, a process running on a host first reserves a memory space for holding read data. The process then invokes a device driver associated with the storage device adapter, specifying ***that data from the storage device*** is to be read into read data

memory space. At the close of the read transaction, the adapter generates a response and an **associated** write RDMA with an immediate work queue element that is interpreted and processed and transmitted via RDMA transfer to a host where it is stored in a location which was reserved for the response message. Craddock does not teach ***a method for initiating a peer-to-peer communication session by performing, in response to a successful first RDMA read operation, a first RDMA write operation to the cluster partner.***

Plummer merely discloses a method for replacing recursive C loops with JAVA programming language recursion. Plummer teaches a method where one programming language is re-written with another programming language to prevent recursion in loops coded into software.

As stated above, Craddock does not disclose initiating a peer-to-peer connection using predefined hardware address and port number known to support RDMA operations. Rather Craddock only discloses connecting to a specific disk sector and memory.

Applicant respectfully urges that Craddock and Plummer either taken singly or in any combination are legally insufficient to render the presently claimed invention obvious under 35 U.S.C. § 103(a) because of the absence in each of the cited patents of Applicant's claimed ***performing, in response to a successful first RDMA read operation, a first RDMA write operation to the cluster partner.*** Therefore, claims 1-3 are believed to be in condition for allowance.

At paragraph 8 of the Office Action, the Examiner rejected claims 4-9 under 35 U.S.C. § 103(a) as being unpatentable over Craddock and Plummer in view of Costello *et al.* Patent Application Publication No. US 2003/0078946, published on September 27, 2005.

Applicant respectfully notes that claims 4-9 are dependent claims that depend from independent claims believed to be in condition for allowance. Accordingly, claims 4-9 are believed to be in condition for allowance.

At paragraph 24 of the Office Action, the Examiner rejected claims 10-12 and 20-23 under 35 U.S.C. § 103(a) as being unpatentable over Craddock in view of Sutherland et al., U.S. Publication No. 2002/0114341 (hereinafter "Sutherland").

Applicant's claimed novel invention, as set forth in representative claim 10, comprises in part:

> 10. A storage operating system, executing on a storage system, the storage operating system comprising:
>
> ***a cluster connection manager adapted to initiate a peer to peer communication session with a cluster partner upon initialization of the storage operating system.***

As discussed above, Craddock does not teach ***a cluster connection manager adapted to initiate a peer to peer communication session with a cluster partner upon initialization of the storage operating system.*** Craddock merely teaches initiating a I/O transaction from a connection that is already made. Even though Craddock would at some point have to initialize a connection in order for the I/O transaction to take place, it does not teach initiating a peer-to peer communication upon ***initialization of the storage system*** like the Applicant's invention does. By initiating the communication at the beginning, Applicant's invention enables clients of a cluster connection manager to establish VI/QP communication even in the absence of primitives.

Sutherland discloses a network storage system comprising a storage coordinator that manages distributed storage resources. Sutherland discloses that the storage coordi-

nator may manage the storage resources by assigning nodes to various groups and allocating the storage resources on each of the nodes in a given group to maintaining dynamically replicated versions of the group files. Sutherland does not teach ***a cluster connection manager adapted to initiate a peer to peer communication session with a cluster partner upon initialization of the storage operating system.***

Applicant respectfully urges that Craddock and Sutherland either taken singly or in any combination are legally insufficient to render the presently claimed invention obvious under 35 U.S.C. § 103(a) because of the absence in each of the cited patents of Applicant's claimed use of ***a cluster connection manager adapted to initiate a peer to peer communication session with a cluster partner upon initialization of the storage operating system.*** Therefore, claims 10-12 are believed to be in condition for allowance.

New Claims

Claims 33-35 have been added to the case in the Amendment filed on January 24, 2008. Applicant submits that claims 33-35 are allowable for the forgoing reasons:

Applicant's claimed novel invention, as set forth in representative claim 33, comprises in part:

> 33. A method comprising:
>
> initializing a first remote direct memory access (RDMA) read operation directed to a specific cluster partner before a higher virtual interface layer has fully initialized, using a specific port number and a specific address that support a RDMA operations; and
>
> ***performing a second RDMA read operation directed to a specific cluster partner before a higher virtual interface layer has fully initialized, using a specific port number and a specific address that support a RDMA operations.***

As noted above, Craddock discloses a method, computer program product, and distributed data processing system for processing storage I/O in a storage area network (SAN). Specifically, a process running on a host first reserves a memory space for holding read data. The process then invokes a device driver associated with the storage device adapter, specifying ***that data from the storage device*** is to be read into read data memory space. At the close of the read transaction, the adapter generates a response and an **associated** write RDMA with an immediate work queue element that is interpreted and processed and transmitted via RDMA transfer to a host where it is stored in a location which was reserved for the response message. Craddock does not teach ***performing a second RDMA read operation directed to a specific cluster partner before a higher virtual interface layer has fully initialized, using a specific port number and a specific address that support a RDMA operations.***

Plummer merely discloses a method for replacing recursive C loops with JAVA programming language recursion. Plummer teaches a method where one programming language is re-written with another programming language to prevent recursion in loops coded into software.

As stated above, Craddock does not disclose initiating a peer-to-peer connection using predefined hardware address and port number known to support RDMA operations. Rather Craddock only discloses connecting to a specific disk sector and memory.

Applicant respectfully urges that Craddock and Plummer either taken singly or in any combination are legally insufficient to render the presently claimed invention obvious under 35 U.S.C. § 103(a) because of the absence in each of the cited patents of Applicant's claimed ***performing a second RDMA read operation directed to a specific cluster partner before a higher virtual interface layer has fully initialized, using a specific port number and a specific address that support a RDMA operations.***

Please charge any additional fee occasioned by this paper to our Deposit Account No. 03-1237.

Respectfully submitted,

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